Lab Assignment

Cybersecurity Professional Program

Introduction to Python for Security

File System & Error Handling

PY-04-L3

Handling Files

Lab Objective

Understand how to perform file operations while handling errors in Python.

Lab Mission

Practice working with files and error handling.

Lab Duration

10–20 minutes

Requirements

- Basic knowledge of Python
- Working knowledge of an IDE environment
- Working knowledge of loops and error handling

Resources

- Environment & Tools
    - Windows
        - PyCharm
        - Python 3

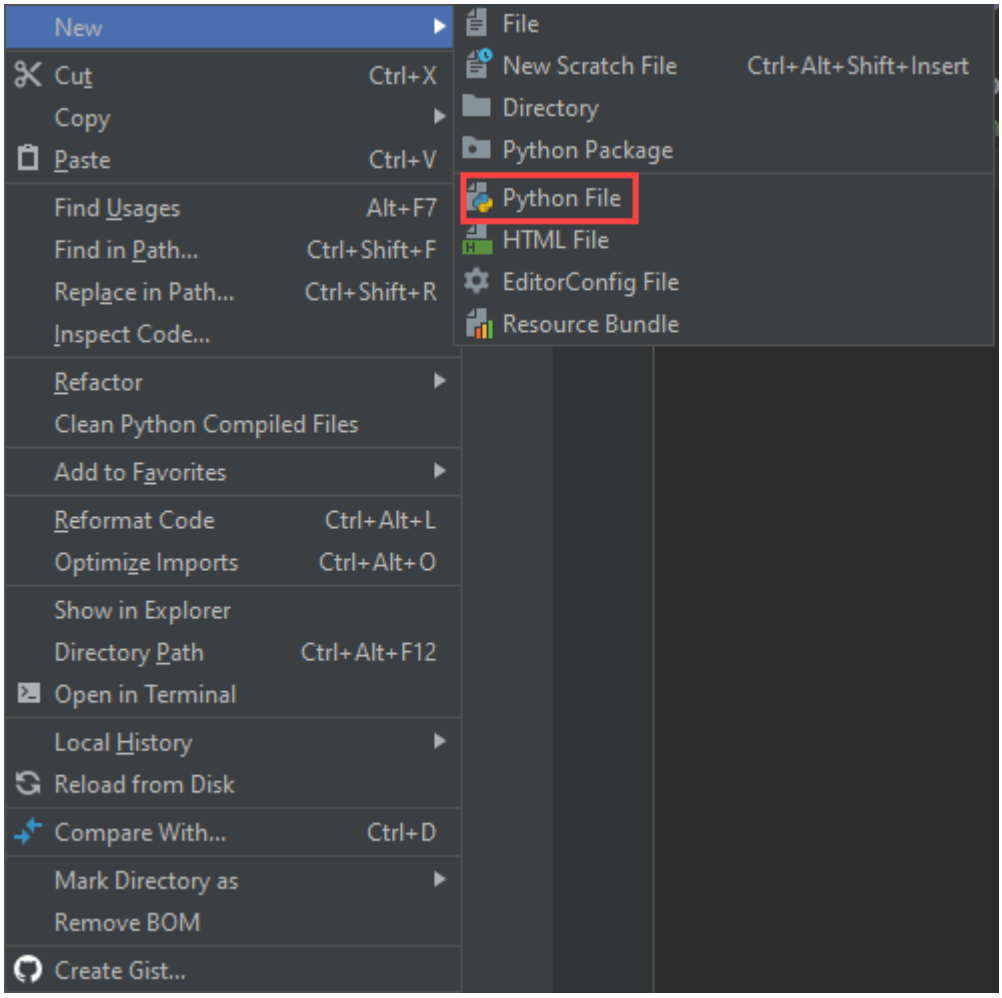
Textbook References

- Chapter 4: File System and Error Handling
    - Section 2: File Manipulation

Lab Task 1: Write Error

Create a ***with()*** statement that opens a file in read mode and then try to write to it.

1. Create a new Python file in PyCharm by right-clicking the project you created and selecting **New** > ***Python File***.



2. Create a ***with()*** statement to open a text file in read mode with a variable.

```
with open("text.txt", "r") as text:
```

3. Write any text in the opened file.

```
with open("text.txt", "r") as text:
    text.write("Test")
```

4 Put the code in a ***try*** block.

```
try:
    with open("text.txt", "r") as text:
        text.write("Test")
```

5 Create an exception block to handle the error and print an error message explaining that an open file cannot be written to in read mode.

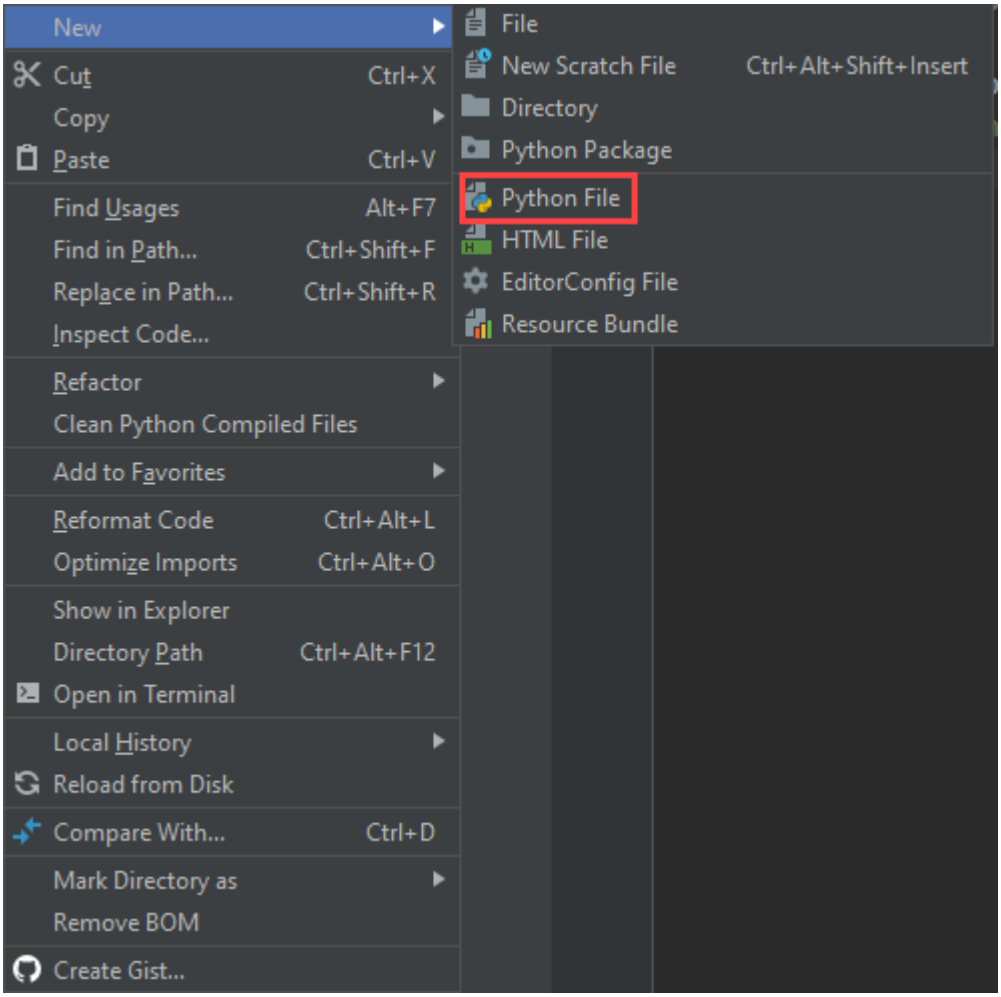
```
try:
    with open("text.txt", "r") as text:
        text.write("Test")

except Exception:
    print("Unsupported Operation, cannot write in read mode.")
```

Lab Task 2: Handling Files

Using the appropriate methods in Python, write a script that will open a file, take input from a user, and use the input to write to a file before exiting.

1. Create a new Python file in PyCharm by right-clicking the project you created and selecting **New** > ***Python File***.



2. Open a non-existent file in append mode and set it to a variable. Note that using append to open a file will create a file if it doesn't exist.

```
file = open("file.txt", "a")
```

3 Add an infinite ***while*** loop to take user input and set it to a variable.

```
file = open("file.txt", "a")
while True:
    message = input("Enter text! ('Exit' to exit): ")
```

4 If the user input is *exit*, the loop will end.
Note: Make sure the user input is in lowercase letters.

```
file = open("file.txt", "a")
while True:
    message = input("Enter text! ('Exit' to exit): ")
    if message.lower() == "exit":
        break
```

5 If the input is not *exit*, write the input to the file and move to the next line.

```
file = open("file.txt", "a")
while True:
    message = input("Enter text! ('Exit' to exit): ")
    if message.lower() == "exit":
        break
    else:
        file.write(message + "\n")
```

6 Once the loop is done running, use the ***close()*** method to close the file.

```
file = open("file.txt", "a")
while True:
    message = input("Enter text! ('Exit' to exit): ")
    if message.lower() == "exit":
        break
    else:
        file.write(message + "\n")
file.close()
```

7 Put your code in a ***try*** block.

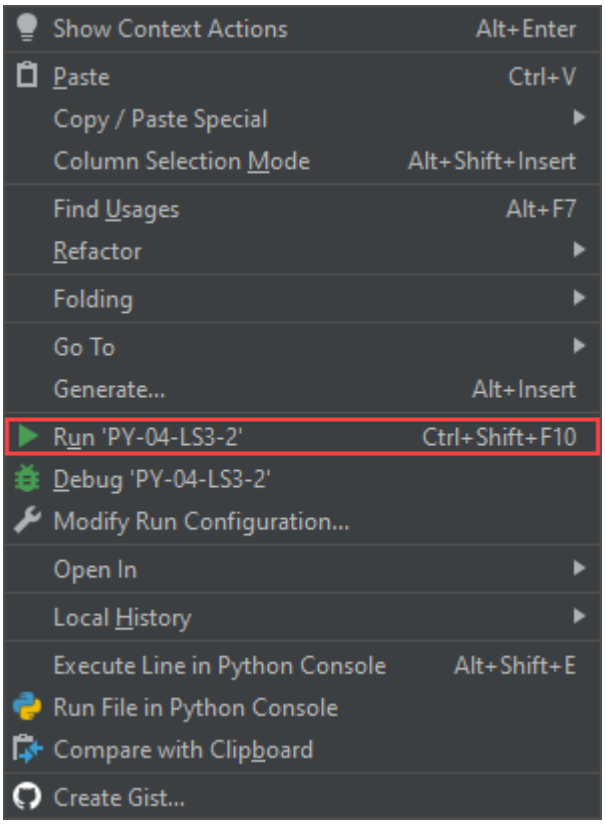
```
try:
    file = open("file.txt", "a")
    while True:
        message = input("Enter text! ('Exit' to exit): ")
        if message.lower() == "exit":
            break
        else:
            file.write(message + "\n")
    file.close()
```

8 Add an ***except*** block after the ***try*** block to handle any unexpected errors while opening the file.

```
try:
    file = open("file.txt", "a")
    while True:
        message = input("Enter text! ('Exit' to exit): ")
        if message.lower() == "exit":
            break
        else:
            file.write(message + "\n")
    file.close()

except:
    print("An error occurred while trying to open the file.")
```

9 Run the code by right-clicking it and selecting ***Run '[Python file name]'***.



10 Input several lines of text and exit the script. In the Project Files list in PyCharm, find the newly created ***file.txt***, open it, and confirm that the text input during the script's execution is present in the file.